Big data, smart cities, intelligent buildings - surveying in a digital world

Peter Maitland FRICS
“Cities of the Future” or “The Future of Cities”

Utopia or Dystopia?

A matter of scale?
About RICS

RICS is the world’s leading professional body that promotes and enforces standards in **land, real estate, construction** and **infrastructure**

Our name promises the consistent delivery of professional standards - bringing confidence to the markets we serve
Our vision

Through our credentials and our professional standards we will create confidence in markets and be known for effecting positive change in the built and natural environments
What RICS stands for

- Professionalism
  - High entry standards
  - Continuing Professional Development

- Regulation
  - Rules of Conduct
  - Regulated by RICS

- Ethics
  - Ethics are assessed on entry to RICS
  - Mandatory ethics test every 3 years

- Client confidence
Characterising Big Data

- Volume
- Velocity
- Variety

Complexity
Value of Data – some findings from RICS Future of Surveying consultation

- Does your organisation have a digital / technology strategy?
  - 47% Yes
  - 39% No
  - 14% Don’t know

- Is your organisation currently making the most of technology available today?
  - 36% Yes
  - 51% No
  - 13% Don’t know
The knowledge hierarchy

- Information as ‘know what’,
- Knowledge as ‘know how’
- Understanding as ‘know why’
Jobs and skills

**Domain expertise**
- A deep theoretical, factual and practical knowledge of the field;
- Familiarity with the types of data that are available and their provenance;
- The ability to identify knowledge gaps;
- The ability to work with others and teach them an appreciation of the field (important in a multi-disciplinary team).

**Data expertise**
- An understanding of how the data have been collected and curated;
- Familiarity with the relevant data models;
- An understanding of the relationships between the objects being modelled and their digital representations;
- The ability to facilitate data sharing both during and after the project;
- An understanding of how relevant data are generated, stored and accessed;
- The ability to predict alternative and future and uses for the data.

**Analytical expertise**
- An understanding of the strengths and weaknesses of the tools;
- The ability to select and customise tools to support the project needs;
- The ability to predict and detect error rates in the data and in the data analysis algorithms;
- The ability to teach others to interpret the results of the analysis.
Speed of Big Data adoption

How do we distinguish between technologies that are likely to be adopted and those that will not? How do we accommodate some of these new capabilities? How do we assess the value of property assets that have new beneficial capabilities and those that don’t?
Convergence of technologies

- Automation to Cognition (autonomy)
- Internet of Things (IoT)
- Blockchain
- The Cloud
- Crowdsourcing
- Drones
- Innovation in Materials / Solutions
Building Information Modelling

- BIM as the new standard
- Improvement in Cost
- Improvement in Construction efficiency
- Improvement in Operational efficiency
- Robust and accurate record of Building Data for current and future needs
Managing city operations

Figure 4: Rio De Janeiro Operations Centre. Images: Rachel Glickhouse, AS/COA
Responses to 3 questions from RICS to its members

Future smart city technology
- 48% a golden opportunity
- 30% mostly hype right now
- 15% everywhere already
- 7% a threat to freedom

BIM is a real game-changer for whom?
- 40% facilities managers
- 34% quantity surveyors
- 14% land owners
- 12% lawyers

Privately owned public spaces are:
- 39% bad for civil liberties
- 25% great placemaking
- 19% a necessary evil
- 17% no big deal
And a few personal thoughts ....

Risks and challenges

- Cost / budget constraints
- Capacity constraints
- Who is the decision maker esp. for public sector projects?
- Current public distrust of (short term) political policy
- Use and Abuse of Data
- Cyber security and “bad actors”
- Demographics risk disenfranchising the elderly, the poor, and many others
Thank you

More information can be found on www.rics.org